

An excellent method of controlling clocks by electric currents was first adopted at the Liverpool Observatory. A paper by Mr. Hartnup on this subject is published in the Report for 1857 of the British Association for the Advancement of Science.

Mr. Hartnup resigned the directorship of the Liverpool Observatory in May, 1885. His health had been failing for some time, and on his retirement he took up his residence in London, chiefly with the view of obtaining medical advice. He died suddenly in London on October 20, 1885.

Enough has been said to show the great amount of labour bestowed by Mr. Hartnup on the subject of marine chronometry. The highest authorities have spoken in strong terms of the utility of the work done at the Liverpool Observatory in testing chronometers for the mercantile marine. Sir G. B. Airy, K.C.B., when Astronomer Royal, repeatedly alluded to the importance of this work. Mr. Hartnup was elected a Fellow of the Royal Astronomical Society on February 14, 1845.

WILLIAM LADD was born at Deal in 1815, whence he came to London at the age of 14. Mr. Ladd was well known in scientific and commercial circles for his efforts in aiding research, for during the decade extending from 1860 to 1870 he took a very prominent part in introducing electricity into practical utility. Nor was his interest in this line confined merely to any particular branch of the science, for we find him at one time in correspondence with Prof. Reis, who may be said to have made the earliest efforts towards recording the sound of the human voice transmitted over long distances. A letter is still extant in which Prof. Reis explains to Mr. Ladd his views upon this question, and the partial success that attended his efforts. Mr. Ladd was well known as the constructor of some of the largest induction coils and electrical apparatus, manufactured under his supervision at his premises in Beak Street, Regent Street.

In 1867 Mr. Ladd brought forward a dynamo machine, which in many respects showed a marked improvement on the previous dynamos of Siemens, Varley, and Wilde, and whereby many of the then existing difficulties in the way of constructing dynamos for practical and commercial use were removed. Somewhat later, in the year 1878, Mr. Ladd was instrumental in introducing into this country the Wallace-Farmer system of electric lighting from America, where it had met with considerable success. The dynamos and arc lamps employed on this system underwent considerable improvement at Mr. Ladd's hands; and one of the earliest installations of electric lighting afforded to the public was made under Mr. Ladd's supervision on the above system at the Liverpool Street terminus of the Great Eastern Railway.

Mr. Ladd was from the time of its formation a director of the Anglo-American Brush Electric Light Corporation (Limited),

and also of the Electrical Power Storage Company, and he took an active interest in the administration of these companies until almost the day of his death.

Mr. Ladd was of a kind and loving disposition, always ready to help others with advice and means. He died after a long and painful illness on April 16, 1885.

He was elected a Fellow of this Society on April 12, 1867.

JAMES LAWSON was born in London on January 28, 1847. Left an orphan when very young, he early determined to go to sea, and the profession he selected was throughout his life one for which he had a most ardent love. After several years spent on different vessels he, in 1870, joined the Royal Mail Company as fifth officer. In this service he distinguished himself by his thorough capabilities as a seaman, and by possessing an immense amount of knowledge of the physical geography of the sea, and in eight years he rose to the rank of captain. On February 15, 1885, in severe weather, he left New York, with an excellent staff of officers and a good crew, in command of the ill-fated steamship the *Humber*. Nothing has ever been heard of the vessel since, and she is supposed to have foundered.

He was elected a Fellow of this Society, 1883, May 11.

JAMES McDOWELL was born at Ballymacarow, co. Down, Ireland. He was a graduate both of Trinity College, Dublin, and Pembroke College, Cambridge, and in both universities he earned high distinction in many ways. At Dublin he five times obtained first-class honours in science, besides the first silver medal in mathematics at the degree examination. At Cambridge, in spite of the disadvantages arising from very bad health, he took the highest places in his college both in classics and mathematics, and graduated as seventeenth wrangler. Since the period of taking his degrees, his time has been principally devoted to private tuition, and many past and present members of the University of Cambridge will grieve to hear of the death of their tried and able tutor. In 1863 he published "Exercises on Euclid and in Modern Geometry," which was one of the first Cambridge books in which such subjects as harmonic and anharmonic pencils and ranges, radical axes and centres, involution, poles and polars, and reciprocal polars were considered in an elementary geometrical manner. Mr. McDowell treated these subjects as much as possible by Euclidean methods, so as to render the book acceptable to those who were only familiar with the ancient geometry. He was also one of the original editors of the *Messenger of Mathematics* at its foundation in 1862. In 1867 he published a Mechanics for use in the elementary examinations of the University.

He died at Cambridge, on March 17, 1885, leaving a widow and four children.

He was elected a Fellow of this Society, January 10, 1862.